



College Readiness and the Potentially Overlapping Outcomes of Community College Entrants

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Executive Summary

With open enrollment and comprehensive missions, community colleges provide opportunities for postsecondary education to a wide variety of students who enroll for myriad reasons (American Association of Community Colleges, 2012; Bailey, Calcagno, Jenkins, Kienzl, & Leinbach, 2005; Bryant, 2001). The inclusive nature of American community colleges is intended to facilitate equality of higher educational opportunity (Anderson, Alfonso, & Sun, 2006; Dougherty, 1994). Yet, given the diverse goals and interests of community college students, explaining their postsecondary educational outcomes remains a complicated task. The challenge in explaining postsecondary outcomes is especially acute in the current policy environment that focuses on degree completion with traditional reporting mechanisms that do not account for transfer as a student outcome.

A related issue in studying community college entrants stems from complex interrelationships between the different community college outcomes. That is, a community college entrant could earn a certificate, earn an associate degree, transfer to a four-year college (vertical transfer), or attain some combination of the three. Further, the relationships between the outcomes, or the specific outcome patterns, may in turn be related to other educational outcomes, such as bachelor's degree completion.

A complementary issue associated with the open enrollment of community colleges is that students initially enroll at community colleges with varying degrees of college readiness. While many community college entrants lack "college readiness" and need remediation or developmental coursework (Cohen & Brawer, 2008), other community college students are

adequately prepared to move into college-level work (Smalley, Lichtenberger, & Brown, 2010; Lichtenberger & Dietrich, 2012; Mullin, 2012). This report focuses on a multifaceted approach to college readiness using benchmarks developed by the ACT (ACT, 2010).

The focus of this report is to describe the diverse, potentially overlapping range of student outcomes for community college entrants, such as vertical transfer, earning an associate degree, or earning a certificate while taking into consideration differences in college readiness as well as other student characteristics.

How Is College Readiness Distributed Among the Community College Entrants?

The distribution of college readiness among the community college entrants varied from that of the overall high school graduating cohort and suggested that, as a group, the students who initially enrolled at community colleges were less ready for college than the overall cohort. Further, the rate of initial community college enrollment varied for students across the benchmark categories. Members of the high school graduating cohort who met only one of the benchmarks had the highest rates of initial community college enrollment, perhaps due to a need for remediation in one or more subject areas. However, the findings also demonstrate that a sizable portion of community college entrants is well-prepared to make the postsecondary transition as one in five has met three or more benchmarks. This is one reason the outcome-related results are provided separately for each college readiness group.

How Do the College Readiness Benchmark Patterns Relate to Outcomes?

- Community college entrants meeting all of the benchmarks had the highest overall outcome attainment rate. While three-quarters of the students who were college ready in all subjects attained an outcome from a community college (such as earning a certificate, associate degree, transferring, or some combination of the three), only 42.4% of those missing all of the benchmarks attained an outcome.
- Students meeting three or more of the benchmarks had the highest associate degree completion rates (roughly 42%). These rates of associate degree completion were more than twice the rate for students missing all of the benchmarks (20.4%) and slightly more than 13 percentage points higher than the students who met only one benchmark (combined rate of 28.9%).
- There was some variation in outcome attainment when the information was disaggregated by the actual college readiness subject areas. For example, while 28.9% of the students who met a singular benchmark earned an associate degree, 32.2% of the students who met only Math and 29.6% of the students who met only English earned an associate degree.
- The vertical transfer rates to four-year institutions varied from 63.8% (meeting all of the benchmarks) on the high end to 29.2% on the low end (missing all the benchmarks).
- Among those transferring to a four-year college, the proportion of community college entrants within each college readiness category that also earned an associate degree increased along with the number of benchmarks met. For example, roughly 37% of the transfer students who missed all of the benchmarks earned an associate degree, whereas slightly more than half of the vertical transfer students who met three or more of the benchmarks also earned an associate degree.

Discussion

Although a disproportionately high number of community college entrants from the Illinois high school class of 2003 was less than ready for college, as measured by ACT college readiness benchmarks, a sizable portion (about one in five) of community college entrants met three or more benchmarks. These better prepared community college entrants tended to fare quite well in terms of outcome attainment. Nearly three-quarters of community college entrants who met all of the benchmarks and over 70% of community college entrants meeting three benchmarks either earned a community college credential (nearly all were associate degrees), vertically transferred to a four-year college, or did both.

There were varying degrees of community college success among the less-prepared community college entrants based on the specific college readiness benchmarks that were met. Among the community college entrants meeting only one of the benchmarks, there were relatively high rates of overall outcome attainment, specifically for those meeting either the Math or English benchmark. Further, among the students who met two of the benchmarks, those meeting the benchmarks in both Math and English had the highest overall rate of outcome attainment, and in a few cases it was higher than students meeting three of the benchmarks.

Among the community college entrants who missed all of the readiness benchmarks, more than two out of every five (42.4%) attained a community college outcome. Yet, disproportionately fewer of the students who missed all of the benchmarks and made the transition to a four-year college earned a community college credential prior to transferring, as compared with community college entrants meeting more of the benchmarks. This could be problematic as such students would also be at a higher relative risk of dropping out of their respective four-year colleges without earning a bachelor's degree, leaving them without any college degree.

The Gender Gap

The current study demonstrates how the gender gap favoring female students widens further when moving from enrollment to the postsecondary outcomes of community college entrants (Smalley et al., 2010). A considerably higher proportion of female community college entrants throughout all of the college readiness levels either earned a community college credential or transferred to a four-year college. Relatedly, among the male community college entrants who made the transition to a four-year college, considerably fewer earned an associate degree prior to transferring—this was evident both in terms of the actual rate of transfer without an associate degree and the proportion of male vertical transfers lacking an associate degree. When placed in the context of gender differences in bachelor's degree completion rates, males are considerably less likely to complete a bachelor's program either as four-year college entrants (Lichtenberger & Dietrich, 2012; Smalley et al., 2010) or as vertical transfer students (Smalley et al., 2010). Given that there are fewer male community college entrants earning associate degrees prior to transfer, considerably more males would be at risk of leaving college without any postsecondary credential.

Differences in terms of ethnicity/race

Across all of the college readiness categories, White and Asian community college entrants had substantially higher rates of associate degree completion in comparison to their traditionally underserved minority counterparts. Differences in terms of vertical transfer rates were somewhat more muted when comparing the well-prepared White and Asian community college entrants to their similarly-prepared underserved peers. However, among the less-prepared community college entrants, traditionally underserved students had lower vertical transfer rates than similarly-ready White and Asian students—this was coupled with considerably lower proportions of traditionally underserved community college entrants earning an associate degree prior to transfer. The low rate of associate degree completion prior to transfer could be problematic, as previous research has shown that traditionally underserved vertical transfer students have comparatively lower rates of bachelor's degree

completion (Smalley et al., 2010). This, along with the results of the current study, suggests that traditionally underserved vertical transfer students would be at a greater relative risk of dropping out of college without any postsecondary degree since fewer earn associate degrees prior to transfer and fewer complete bachelor's degrees after making the transition to a four-year college.

Family income and college ready students

Consideration of college readiness appeared to eliminate some of the achievement gap in community college outcome attainment that has traditionally favored students from wealthier families (Smalley et al., 2010). The differences in overall community college outcome attainment between well-prepared students from middle-income and high-income families were extremely small. Still, the rates of attainment for the specific outcomes differed by income group. The community college entrants from high income families had substantially higher vertical transfer rates, while students from middle income families had substantially higher rates of associate degree completion in addition to higher rates of vertical transfer after earning an associate degree.

Regional differences

Community college entrants from the Northeast region of the state—the Chicago suburbs—appeared to have more of a singular focus on transitioning to a four-year college, as throughout all of the college readiness categories they tended to have the lowest community college credential completion rates and the highest vertical transfer rates without a community college credential. Students from more rural locales, such as the Southeast, Southwest, and Northwest regions, had significantly higher rates of community college credential completion even after accounting for college readiness. In terms of eliminating geographic disparities in educational attainment, the results suggested that community colleges seem to be providing opportunities to students with varying levels of college readiness from more rural locales—such as the Southeast region—not only for associate degree and certificate attainment but also as a means to transition to a four-year college.

Policy Implications: The Community College as Part of the Completion Agenda

Importance of Associate Degrees

More must be done to provide select groups of community college entrants with information regarding the benefits of completing an associate degree regardless of their intention to transfer to a four-year college and earn a bachelor's degree. The information is particularly important for community college entrants making the transition to four-year colleges who are at risk of not completing their bachelor's degree. Unfortunately, many of the groups of students with relatively high rates of vertical transfer without an associate degree have traditionally maintained relatively low rates of bachelor's degree completion—namely males, traditionally underserved minority students, and those who are less prepared for college. The associate degree could serve not only as insurance in the event a bachelor's degree is not earned, but as a building block towards bachelor's completion.

Reverse articulation initiative

Vertical transfer students at risk of not completing a bachelor's degree would benefit from a current policy initiative that attempts to increase the proportion of degree holders by facilitating the exchange of information between two-year degree granting and baccalaureate-granting institutions. This initiative is sometimes called "reverse articulation," "providing credit when it's due," or "reverse transfer." As policies are developed related to reverse articulation, policymakers should take into consideration the groups of vertical transfer students at risk of leaving college without any degree. Reverse articulation typically involves the development of policies allowing vertical transfer students to apply credits earned at a four-year institution to the completion of an associate degree begun at a community college. The motivation behind such

policies is that if vertical transfer students are leaving their respective community colleges without an associate degree, it would be beneficial to establish methods for determining if the credits earned at their receiving four-year college would fulfill the remaining associate degree requirements at their sending community college. Therefore, reverse articulation policies have the potential to increase the number of associate degrees earned.

Generally, in order for a vertical transfer student to be eligible for reverse articulation of credit they must leave the community college in good academic standing with their total credit hours over a certain threshold which varies by state. For example, some states require 45 community college credit hours prior to the vertical transfer for eligibility (Garber, Kleemann, Marshall, Parke, & Wunderle, 2010; Mangan, 2011). In moving towards bachelor's degree completion at their four-year college, these transfer students sometimes successfully complete the coursework that was required for an associate degree at their sending community college. With a reverse articulation policy in place, the four-year institution provides the information to the sending community college, and a degree audit takes place. Transcripts are requested to verify the degree audit, then, if the credits from the four-year institution fulfill the remaining associate degree requirements at the sending community college, the student is formally awarded the associate degree by that community college.

The benefits of the reverse articulation initiative to the typical vertical transfer student are fairly straightforward, especially if the student has characteristics associated with an increased risk of dropping out of a bachelor's degree program. Simply put, more students would be earning college degrees. Community colleges would also benefit as they would now be able to report increased degree completion rates for their community college entrants.

Table of Contents

Introduction.....	7
Study Objectives and Research Questions	9
Theoretical Framework.....	10
Pre-college Characteristics.....	10
Environmental Factors	12
Geography.....	12
Postsecondary Outcomes of Illinois Community College Entrants.....	12
Methods	13
Data	13
Analysis.....	13
Results.....	14
Profile of the Community College Entrants from the Illinois High School Class of 2003	14
How is college readiness distributed among the community college entrants?	14
What are the demographic differences between the community college entrants and the overall cohort?	16
How do the college readiness benchmark patterns relate to outcomes for community college entrants?	18
How are gender and college readiness associated with community college outcomes?	20
How are college readiness and race/ethnicity associated with community college outcomes?	22
How are family income and college readiness associated with community college outcomes?....	24
How are other environmental factors and college readiness associated with community college outcomes?	26
How are region and college readiness associated with community college outcome attainment? 28	
How are community college credential attainment and college readiness associated with transferring to a four-year college?	30
Discussion	31
What did exploring the community college outcomes by the various college readiness benchmark patterns tell us?	31
What happens when pre-college and environmental factors as well as geography are considered?	32
What happens when proximity to four-year colleges is considered?	34
Policy Implications: The Community College as Part of the Completion Agenda.....	35
Future Research	36
References	37

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ACKNOWLEDGEMENTS

First and foremost, we would like to thank Jennifer Barnhart for all of her hard work and determination that ultimately led to the final draft of this report. We would also like to thank Christopher Mullin, Nathan Wilson, and Daniel Cullen for their feedback on an earlier version of this report. Finally, we would like to thank Janet Holt, Brenda Klostermann, and Brad White for their editorial assistance during the development of this report.

Suggested citation:

Lichtenberger, Eric J. & Dietrich, Cecile. (2012). *College readiness and the potentially overlapping outcomes of community college entrants* (IERC 2012-3). Edwardsville, IL: Illinois Education Research Council at Southern Illinois University Edwardsville.

Introduction

“The community college’s potential is greater than that of any institution because their concern is with the people most in need of assistance... They are engaged with people on the cusp, people who would enter the mainstream or fall back into a cycle of poverty and welfare. That is why they deserve the support of everyone who values societal cohesion and the opportunity for all people to realize their potential.” (Cohen & Brawer, 2008, p. 444)

With open enrollment and comprehensive missions, community colleges provide opportunities for postsecondary education to a wide variety of students who enroll for myriad reasons (American Association of Community Colleges, 2012; Bailey, Calcagno, Jenkins, Kienzl, & Leinbach, 2005; Bryant, 2001). The inclusive nature of American community colleges is intended to facilitate equality of higher educational opportunity (Anderson, Alfonso, & Sun, 2006; Dougherty, 1994). There is evidence that community colleges are fulfilling this intention. For example, research has shown that community college transfers are as likely to attain a bachelor’s degree as rising juniors who enrolled at their respective four-year colleges as freshmen (Lee, Mackie-Lewis & Marks, 1993; Melguizo & Dowd, 2009; Melguizo, Kienzel, & Alfonso, 2011).

Given the diverse goals and interests of community college students, explaining their postsecondary educational outcomes remains a complicated task. Smalley, Lichtenberger, and Brown (2010) argued that it is difficult to attribute a specific goal to students who start their academic careers at a community college, as they could complete their initial goal while not earning an associate degree or certificate. Many students enroll at community colleges without associate degree or certificate attainment in mind and take coursework for specific skills or personal interest (Horn, Nevill, & Griffith, 2006). In fact, some community college students may maintain the singular goal of transferring to a four-year college without the intent of earning an associate degree (Long & Kurlaender, 2009; Bailey, 2012).

The challenge in explaining postsecondary outcomes is especially acute in the current policy environment that focuses on degree completion with traditional reporting mechanisms that do not account for transfer as a student outcome. In effect, as community college degree completion has become increasingly emphasized, other community college functions and the related student outcomes, such as transfer, have become “less visible” (Mullin, 2012).

A related issue in studying community college entrants stems from complex interrelationships between the different community college outcomes. That is, a community college entrant could earn a certificate, earn an associate degree, transfer to a four-year college, or attain some combination of the three. Further, the relationships between the outcomes, or the specific outcome patterns, may in turn be related to other educational outcomes. For example, Roska and Calcagno (2010) found that earning an associate degree increased the probability of transferring to a four-year institution. Similarly, in a previous cohort of Illinois community college entrants, Smalley et al. (2010) found that vertical transfer students who also earned an associate degree during their community college stay had considerably higher rates of bachelor’s degree completion when compared with students who transferred without an associate degree (64% to 48%, respectively). The difference in bachelor’s completion rates would have been masked without accounting for

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The challenge in explaining postsecondary outcomes is especially acute in the current policy environment that focuses on degree completion with traditional reporting mechanisms that do not account for transfer as a student outcome.

A complementary issue associated with the open enrollment of community colleges is that students initially enroll with varying degrees of college readiness.

Varying degrees of college readiness should be considered when examining community college outcomes.

associate degree completion, thus illustrating the importance of closely examining relationships among the various community college outcomes.

A complementary issue associated with the open enrollment of community colleges is that students initially enroll with varying degrees of college readiness. While many community college entrants lack “college readiness” and might require remediation or developmental coursework (Cohen & Brawer, 2008), other community college students are adequately prepared to move into college-level work (Smalley et al., 2010; Lichtenberger & Dietrich, 2012; Mullin, 2012). The need for developmental or remedial coursework is not accounted for in reporting mechanisms such as the Integrated Postsecondary Education Data System (IPEDS). IPEDS reports information for all full-time, first-time and degree/certificate seeking community college entrants without taking into account the need for remediation. However, there is sufficient evidence of the need for remediation among community college entrants. Nearly fifty percent of Illinois community college entrants who enrolled in 2010 required some remediation (Complete College America, 2011). The need for remedial or developmental coursework among community college entrants is a potent predictor of postsecondary success—only 14% of those requiring remediation earned a community college degree within three years of starting (Complete College America, 2011).

A final issue in studying community college entrants is not only the explicit consideration of college readiness in reporting systems, but the inclusion of outcomes across a fuller range of academic preparedness. A similar argument focusing on all high school graduates was developed in Lichtenberger and Dietrich (2012) and articulated by Conley (2011). When college readiness is considered in studies and reports examining the pathways of community college entrants, the focus tends toward a dichotomous view of college readiness—either students are ready for college or they are not (Roska & Calcagno, 2010; ACT, 2011). Yet another approach focuses exclusively on postsecondary outcomes for students who are not academically prepared, with the outcomes for academically prepared students not readily available for comparisons (Complete College America, 2011).

This report focuses on a multifaceted approach to college readiness using benchmarks developed by the ACT (ACT, 2010). We believe this approach provides more and better information with respect to describing the various postsecondary outcomes of community college entrants in terms of college readiness.

The college readiness benchmarks established by ACT are used in this report. ACT (2010) defines college readiness benchmarks as the minimum ACT test score on each subject test required for a high probability of success in college courses: “Students who meet a Benchmark on the ACT...have approximately a 50 percent chance of earning a B or better and approximately a 75 percent chance of earning a C or better in the corresponding college course or courses” (p.1). The ACT benchmarks are currently set at 22 in Math, 18 in English, 21 in Reading, and 24 in Science.

Study Objectives and Research Questions

The focus of this report is to describe the diverse, potentially overlapping range of student outcomes for community college entrants, such as vertical transfer, earning an associate degree, or earning a certificate while taking into consideration differences in college readiness as well as other student characteristics.

We investigate the following research questions:

1. How do the community college entrants differ from the overall cohort in terms of college readiness, pre-college and environmental factors, and geography?
2. How do community college entrants perform in terms of associate degree completion, certificate attainment, and vertical transfer across different levels of college readiness?
3. How does the association between college readiness and other factors—race, gender, family income, the expectation to work during college, the expectation to receive financial aid, and geography—relate to associate degree completion, certificate attainment, and vertical transfer to four-year institutions?
4. How does the association between college readiness and other factors relate to the overlap between community college degree completion and vertical transfer?

This is part one of a two-part series of research reports that focus on the postsecondary outcomes of community college entrants. Part two will examine how college readiness and other pre-college, environmental, and institutional factors are related to bachelor's degree completion for community college entrants who vertically transfer. The second report will also highlight how the community college outcomes, namely associate degree attainment prior to vertical transfer, factor into bachelor's degree completion.

Theoretical Framework

Integrating conceptual and empirical research on postsecondary outcomes, Wang (2009) proposed a comprehensive model of postsecondary educational outcomes. We focus on two of the general components described by Wang (2009) in predicting outcomes for community college entrants: pre-college characteristics and environmental factors. We also consider a third general component that remains salient for Illinois students: geography.

Pre-college Characteristics

Gender

In terms of gender differences, the rate of vertical transfer to four-year institutions is not firmly established in the literature. For example, using a recent state-level dataset, the rate of transfer was fairly similar for male and female community college entrants (Smalley et al., 2010). This finding conflicts with earlier studies by Surette (2001) that used data from the National Longitudinal Survey of Youth, and Bailey, Jenkins, and Leinbach (2005) that used the annual IPEDS surveys of all postsecondary educational institutions and the NCES Beginning Postsecondary Students Longitudinal Study 1996-2001. Both Surette (2001) and Bailey, Jenkins, and Leinbach (2005) report lower transfer rates for females.

The pattern for associate degree earners and certificate completers is more consistent and favors females. Using a state-level data-set, Smalley et al. (2010) found that a considerably higher proportion of female students earned an associate degree or technical certificate during their community college enrollment. Likewise, Bosworth (2010) found that approximately two-thirds of certificate holders were women.

Race

African American community college entrants were “less than half as likely” to earn an associate degree within six years as compared to their White counterparts (Bailey, Jenkins & Leinbach, 2005, p. 42). Furthermore, Bailey, Jenkins, and Leinbach (2005) reported that White community college entrants transferred to four year institutions at approximately twice the rate at which their African American peers transferred. Finally, White community college entrants were more likely than their African American peers to earn a bachelor’s degree (12% to 2% respectively).

Similarly, in a state-wide study of Illinois high school graduates, Smalley et al. (2010) found that considerably higher proportions of Asian (50%) and White (42%) students transferred to four-year colleges relative to African American (28%) and Latino/a students (30%). Also, considerably higher proportions of White students earned an associate degree (31%) relative to Asian (18%), Latino/a (19%), and African American (12%) students. Relatedly, African American community college entrants had the lowest combined community college outcome attainment rate at 36%—defined as either earning an associate degree, a certificate, or vertically transferring.

The pattern for certificate completion is nearly reverse. According to Carnevale, Rose, and Hanson (2012), nationally, African Americans had the highest rate of certificate completion at 17%. In contrast, only 11% of White, Latino/a, and Asian

Americans completed a certificate program as their highest educational attainment. Likewise, Mullin (2011) stated that “the increase in certificate attainment was much greater for non-Whites” (p. 7). Bailey, Jenkins, and Leinbach (2005) reported similar findings, with African Americans completing certificates at a rate of 17% and Latino/a and White students both completing certificates at a rate of 9%.

Family income

Previous research suggests that higher family income levels are associated with higher community college transfer rates to four year programs (Dougherty & Kienzel, 2006; Goldrick-Rab & Pfeffer, 2009; Goldrick-Rab, 2010). In contrast, certificate completers are concentrated among students from low to moderate family income (Carnevale et al., 2012; Smalley et al., 2010). Community college entrants from families in the mid-high income quartile (\$50K to \$80K) had considerably higher rates of associate degree completion than students from all other quartiles (Smalley et al., 2010).

College readiness

Research has shown that a disproportionately high number of recent high school graduates who initially enroll at community colleges are not academically ready for college. Smalley et al. (2010) found that roughly 38% of students who enrolled at a community college upon high school graduation were not ready for college based on their high school grades and performance on the ACT, while less than 10% of community college entrants were deemed “most” ready. Given the relatively high number of community college entrants not ready for college level work, many of these students take developmental or “remedial” coursework to help prepare for college level courses (Feely, 2011; Perin, 2006). Bailey, Jenkins, and Leinbach (2005) reported that 42% of community college entrants took at least one remedial course—this is more than twice the rate of remedial course taking among those enrolling in four-year public institutions. Among community college entrants who never make the transition to a four-year college, nearly two-thirds took one remedial course and over 40% took more than one course (Adelman, 2006).

High numbers of community college entrants are not academically ready for college, with many needing to take remedial coursework.

Previous research has also established that college readiness is related to postsecondary outcomes for community college entrants. Relative to other factors, college readiness accounts for a considerable amount of variation in outcome attainment (Roska & Calcagno, 2010; Smalley et al., 2010). Smalley et al. (2010) found that while four out of every five of the most ready community college entrants—as determined by high school grades and performance on a standardized test—had attained at least one of the community college outcomes, only one in three of the least ready students met that same distinction. In a study that examined factors related to the probability of transfer among community college entrants, Roska and Calcagno (2010) found that approximately one fifth of community college entrants deemed not ready for college due to poor academic preparation succeed in making the transition to a four-year institution. Furthermore, Roska and Calcagno (2010) found that the effect of academic preparedness endured even after specific control variables were introduced. For instance, after controlling for age, gender, race, citizenship, high school diploma completion, financial aid, full-time status and SAT math and reading scores, students who were not academically prepared were still 52% less likely than their academically prepared peers to transfer in any given term. Furthermore, after controlling for whether students passed college math and writing

classes, students who were not academically prepared were still approximately 50% less likely to make the transition to four-year institutions than their academically prepared counterparts. Finally, after controlling for various credit thresholds, being academically underprepared is still a significant disadvantage; among students who have earned 48 credit hours towards a degree, academically unprepared students were still 38% less likely than their academically prepared peers to transfer to a four-year institution.

Environmental Factors

Bean (1990), Bean and Metzner (1985), and Wang (2009) explained that environmental factors may play a role in postsecondary outcomes. For example, family responsibilities and work demands may pull student attention away from studies. Dadgar (2012) found that there was a small negative effect on community college GPA as a result of working, which can in turn affect associate degree completion, certificate attainment, and transfer to a four-year institution. In this report, we considered the following environmental variables: family income, the expectation to work during college, and expectation to receive financial aid.

Geography

Geography is also a relevant variable to consider for Illinois students. For example, Smalley et al. (2010) found that among Illinois students, those from Chicago had the lowest rates of initial community college enrollment, while students from more rural locales, such as the Southeast portion of the state, had the highest community college enrollment rates. Utilization of community colleges for rural Illinois students may be due in part to lack of proximity to four-year institutions. Adelman (2002) found that one factor in explaining the difference in postsecondary enrollment between rural, suburban, and urban students is proximity to postsecondary institutions. In this study, we considered region as a geography-related variable and it was based on the Regional Offices of Education in Illinois.

Postsecondary Outcomes of Illinois Community College Entrants

In a recent study using a similar dataset, it was found that slightly more than one half of the students enrolling at a community college the fall semester following high school graduation had met at least one postsecondary outcome during the subsequent six years (Smalley et al., 2010). The non-mutually exclusive postsecondary outcomes were: earning a career and technical education certificate, earning an associate degree, and/or transferring to a four-year institution. Community college entrants having an unknown or unmet outcome were also described in the study.

This current study describes a similar set of community college outcomes but uses the highest community college credential earned—with associate degrees ranked higher than certificates—and also looks at the overlap between community college credential completion and vertically transferring to a four-year college. At times, certificate and associate degree completion are combined due to relatively few community college entrants earning a certificate (cell size restrictions). When the outcome is presented generically as community college credential attainment, nearly all of the individuals attaining that outcome did so by earning an associate degree. Although lateral transferring among community colleges was not measured as an outcome, community college entrants were tracked across all of their community colleges—both in-state and out-of-state—to determine if a credential was earned. The current study also describes the proportion of community college entrants who have not completed a credential nor vertically transferred but were still enrolled at a community college at the end of the study.

Methods

In considering varying levels of college readiness, as well as other student characteristics, we use a variation of input adjusted metrics described by Bailey (2012) to help depict the differences in transferring, earning a certificate, and associate degree attainment. Although the framework proposed by Bailey (2012) was developed as a way to evaluate community colleges, we felt that basic tenets of his argument were also applicable at the individual level.

Data

The analysis focuses on the 26,513 members of the Illinois Public High School Class of 2003 who enrolled at a community college during the fall semester of academic year 2003-2004 and tracks their postsecondary enrollment and degree/certificate completion until the end of the spring semester of academic year 2009-2010. This study does not include private high school graduates from Illinois, nor does it include out-of-state students who migrated to Illinois community colleges. The cohort data were made available to IERC researchers under shared data agreements with the Illinois Board of Higher Education and ACT. The college enrollment and degree completion information was obtained from the National Student Clearinghouse (NSC), a national collaborative, in which nearly 3,300 postsecondary institutions participate, covering 92% of all postsecondary enrollments (National Student Clearinghouse, 2010).¹

Definitions

Community college entrant: a member of the Illinois High School Class of 2003 who initially enrolled at a community college or another two-year institution during the fall semester of academic year 2003-2004. The full-time/ part-time distinction was not made due to many of the records lacking enrollment status; therefore the following results are somewhat conservative in nature. For instance, degree completion rates would arguably increase if only full-time community college entrants were included in the analyses. Further, this group of community college entrants who graduated from Illinois high schools in 2003 represents only a portion of the entire group of community college students. In the fall semester of 2003, the total fall headcount was 365,019 and the total number of first-time college students was 64,435 (Illinois Community College Board, 2004); therefore, the study group represented 7.3% of all community college enrollment and 41.1% of the first-time community college students in Illinois at that point in time.

Community college outcome: defined as either earning a postsecondary certificate, an associate degree, or transferring to a four-year institution. In many of the graphics, the highest credential earned at a community college is displayed. At times, the interaction of community college credential attainment and vertical transferring to a four-year college is provided.

College readiness: based on a student's performance on the four tests that comprise the ACT: Math, English, Reading, and Science.

Vertical transfer students: a community college entrant who transferred to a four-year institution for at least one semester at some point during the study period.

Analysis

Cross tabulations and custom tables were calculated using SPSS version 19. It should be noted that at times the information presented in the tables and figures may not add up to 100% due to rounding.

¹ The NSC takes a rather conservative approach in their matching procedure that virtually eliminates false positive matches (Type I error); however, an issue with false negatives (Type II error) remains and some of the students who actually enrolled are not identified as having enrolled. Consequently, because of this and the 8% coverage gap in terms of enrollment, the reported rates of enrollment are lower than the actual rates of enrollment.

Results

Profile of the Community College Entrants from the Illinois High School Class of 2003

How is college readiness distributed among the community college entrants?

Community college entrants were typically less ready for college than the overall cohort. Two out of five community college entrants missed all the benchmarks.

While disproportionately more of the students with deficits in college readiness opted to initially enroll at community colleges, nearly one-fifth of the community college entrants had met three or more of the benchmarks (18.4%).

As shown in Table 1, the distribution of college readiness among the community college entrants varied from that of the overall cohort and suggested that as a group, the students who initially enrolled at community colleges were less ready for college than the overall high school graduating cohort. Based on proportions, considerably more of the community college entrants missed all of the benchmarks and considerably fewer community college entrants met three or more of the benchmarks when compared with the overall cohort. Regarding the more subject-specific college readiness patterns, proportional to the entire cohort, fewer community college entrants met the Math benchmark. About 25% of community college entrants met the Math benchmark in contrast to roughly 35% of the overall cohort. Similarly, more community college entrants fell into the English and Reading (13.4% versus 11.3% for the overall cohort), English only (15.6% versus 11.9% for the overall cohort), and to a lesser extent Reading only (4.1% versus 3.1% for the overall cohort) categories. Fewer community college entrants met all of the benchmarks with the exception of Science (6.9% versus 9.3% for the overall cohort). While disproportionately more of the students with deficits in college readiness opted to initially enroll at community colleges, as would be expected due to open enrollment and a greater emphasis on developmental coursework, nearly one-fifth of the community college entrants had met three or more of the benchmarks (18.4%).

The rate of initial community college enrollment varied for students across the benchmark categories. Students who met only one of the benchmarks, particularly those meeting the Math, English, or Reading benchmarks, had the highest rates of community college enrollment, perhaps due to a need for remediation in one or more of the other subject areas. On the other hand, those who met all of the benchmarks had the lowest rate of community college enrollment, but they initially enrolled at four-year colleges at relatively high rates (Lichtenberger and Dietrich, 2012). It should be noted that students meeting both the Math and Reading benchmarks had the highest initial community college enrollment rate; however, relatively few members of the Class of 2003 (one half of one percent) fell into that college readiness category. These findings demonstrate that while the typical community college entrant enrolls while being less than ready for college-level work, there remains a sizable portion that is well-prepared to make the postsecondary transition. This is one reason the outcome outcome-related results are provided separately for each college readiness group.

Table 1

The Rate of Initial Community College Enrollment and the Distribution of College Readiness across the Entire Cohort and Community College Entrants

	Overall Cohort (N =115,677)			Community College Entrants (N=26,513)	
	Total N	Overall Proportion of Class of 2003	Rate of Initial Community College Enrollment	N of Community College Entrants	Proportion of Community College Entrants
ACT Benchmarks Met					
All Subjects	21,246	18.4%	10.4%	2,204	8.3%
Three	14,742	12.7%	18.2%	2,680	10.1%
Two	19,203	16.6%	25.9%	4,978	18.8%
One	19,230	16.6%	29.9%	5,759	21.7%
None	41,256	35.7%	26.4%	10,892	41.1%
ACT College Readiness Category					
Math English Reading Science					
✓ ✓ ✓ ✓	21,246	18.4%	10.4%	2,204	8.3%
✓ ✓ ✓ ⊖	10,743	9.3%	17.0%	1,828	6.9%
✓ ✓ ⊖ ✓	1,618	1.4%	18.0%	291	1.1%
✓ ⊖ ✓ ✓	146	0.1%	26.0%	38	0.1%
⊖ ✓ ✓ ✓	2,235	1.9%	23.4%	523	2.0%
✓ ✓ ⊖ ⊖	4,798	4.1%	22.3%	1,068	4.0%
✓ ⊖ ✓ ⊖	539	0.5%	32.1%	173	0.7%
✓ ⊖ ⊖ ✓	143	0.1%	25.9%	37	0.1%
⊖ ✓ ✓ ⊖	13,123	11.3%	27.0%	3,546	13.4%
⊖ ✓ ⊖ ✓	479	0.4%	25.9%	124	0.5%
⊖ ⊖ ✓ ✓	121	0.1%	24.8%	30	0.1%
✓ ⊖ ⊖ ⊖	1,706	1.5%	29.1%	497	1.9%
⊖ ✓ ⊖ ⊖	13,709	11.9%	30.2%	4,140	15.6%
⊖ ⊖ ✓ ⊖	3,633	3.1%	29.6%	1,077	4.1%
⊖ ⊖ ⊖ ✓	182	0.2%	24.7%	45	0.2%
⊖ ⊖ ⊖ ⊖	41,256	35.7%	26.4%	10,892	41.1%

What are the demographic differences between the community college entrants and the overall cohort?

Gender

As shown in Table 2, a disproportionately high number of community college entrants were female (53.0%) relative to the gender distribution of the overall cohort. Additionally, female students had a slightly higher rate of initial community college enrollment relative to their male peers (23.7% versus 22.1%).

Race/Ethnicity

White students were utilizing community colleges at considerably higher rates than other groups, while African American students appeared to be underutilizing community colleges as a postsecondary pathway.

Community college entrants also differed from the overall cohort in terms of the distribution across race and ethnicity categories. White students were utilizing community colleges at considerably higher rates than other groups, while African American students appeared to be underutilizing community colleges as a postsecondary pathway. Disproportionately fewer African American students and substantially more White students (in terms of both numbers and proportion) were community college entrants. Also, disproportionately fewer Latino/a and Asian American students were community college entrants; however, the marginal difference from that of the overall cohort was not as great as it was for African American and White students. Additionally, White students had a higher rate of initial community college enrollment (25.0%) than Latino/a (20.3%), African American (17.2%), and Asian American students (19.2%).

Family income

In terms of family income, middle income students were enrolling at community colleges at the highest rates.

In terms of family income, middle income students enrolled at community colleges at the highest rates. Relative to the income distribution for the overall cohort, higher proportions of community college entrants were from the two middle income categories and a lower proportion was from the high income category. This paralleled the differences in the rate of initial community college enrollment across the income groups. Students in the mid-low income category had the highest rate of community college enrollment, followed by students in the mid-high income category, while students in the high income category had the lowest rate.

Region

Regarding initial community college enrollment, students from the Southeast region (40%) had a rate that was more than ten percentage points higher than that of the next highest region (East Central at 29.4%).

In comparing the distribution of the overall cohort to that of the community college entrants in terms of region, it was evident that community college entrants were made up of disproportionately fewer students from Chicago and the Northeast region and disproportionately more students from the other regions of the state, most notably the Southeast and Northwest regions. Yet, in terms of actual numbers, a plurality of the community college entrants were from the Northeast region (45.5%) and that figure becomes a majority once Chicago (7.9%) is included. Regarding initial community college enrollment, students from the Southeast region (40%) had a rate that was more than ten percentage points higher than that of the next highest region (East Central at 29.4%) and more than three times higher than that of Chicago.

Table 2

The Rate of Initial Community College Enrollment and the Proportion of Community College Entrants by Pre-College Factors, Environmental Factors, and Geography

	Overall Cohort (N=115,677)		Community College Entrants (N=26,513)		
	Total N	Overall Proportion of Class of 2003 (N=115,677)	Rate of Initial Community College Enrollment (N=115,677)	Community College Entrants N	Proportion of Community College Entrants (N=26,513)
Gender					
Male	55,820	48.3%	22.1%	12,322	46.5%
Female	59,217	51.2%	23.7%	14,064	53.0%
Missing	640	0.6%	19.7%	127	0.5%
Race/Ethnicity					
African American	11,979	10.4%	17.2%	2,056	7.8%
American Indian	540	0.5%	22.6%	122	0.5%
White	67,949	58.7%	25.0%	17,009	64.2%
Latino/a	9,643	8.3%	20.3%	1,961	7.4%
Asian	4,652	4.0%	19.2%	892	3.4%
Other	4,140	3.6%	25.0%	1,034	3.9%
Prefer not to Respond	16,774	14.5%	20.5%	3,439	13.0%
Family Income					
High	17,837	15.4%	16.7%	2,985	11.3%
Mid-High	18,220	15.8%	26.3%	4,791	18.1%
Mid-Low	21,224	18.3%	28.0%	5,937	22.4%
Low	20,891	18.1%	23.6%	4,929	18.6%
Missing	37,505	32.4%	21.0%	7,871	29.7%
Expectation for Financial Aid					
Yes	70,113	60.6%	23.9%	16,738	63.1%
No	17,850	15.4%	23.8%	4,248	16.0%
Missing	27,714	24.0%	19.9%	5,527	20.8%
Expecting to Work During College					
Yes	66,045	57.1%	24.6%	16,225	61.2%
No	21,903	18.9%	21.8%	4,785	18.0%
Missing	27,729	24.0%	19.8%	5,503	20.8%
Region					
Chicago	16,174	14.0%	13.0%	2,101	7.9%
Northeast	56,965	49.3%	21.2%	12,073	45.5%
Northwest	10,719	9.3%	28.9%	3,103	11.7%
West Central	8,728	7.6%	25.8%	2,254	8.5%
East Central	8,527	7.4%	29.4%	2,503	9.4%
Southwest	9,760	8.4%	26.8%	2,616	9.9%
Southeast	4,652	4.0%	40.0%	1,863	7.0%
Missing	152	0.1%	0.0%	0	0.0%

How do the college readiness benchmark patterns relate to outcomes for community college entrants?

Community college entrants meeting all of the benchmarks had the highest overall outcome attainment rate (either earning a certificate, an associate degree, or transferring to a four-year institution).

Figure 1 displays the community college outcome attainment rates by the number of ACT benchmarks met. Community college entrants meeting all of the benchmarks had the highest overall outcome attainment rate (either earning a certificate, an associate degree, or transferring to a four-year institution). While three-quarters of the students (Table 3) who were college ready in all subjects attained an outcome from a community college and close to two-thirds had transferred to a four-year institution during the timeframe of the study, only 42.4% of those missing all of the benchmarks attained one or more outcomes.

There was only a slight difference between the two groups with the highest rates of associate degree completion. As shown in Table 3, students meeting all of the benchmarks had a 42.3% associate degree completion rate, while students meeting all of the benchmarks with the exception of Science—they comprise most of the larger group meeting three of the benchmarks—had a 42.0% associate degree completion rate. These rates of associate degree completion were more than twice the rate for students missing all of the benchmarks (20.4%) and slightly more than 13 percentage points higher than the students who met only one benchmark (combined rate of 28.9%). However, there was some variation within the categories based on the number of benchmarks met when the information was disaggregated by the actual college readiness subject areas. For example, while 28.9% of the students who a singular benchmark earned an associate degree, 32.2% of the students who met Math only and 29.6% of the students who met English only earned an associate degree (Table 3). Also, the community college entrants ready in both Math and English had the third highest associate degree completion rate (38.2%) and it was surprisingly higher than students who met Math and English with an additional benchmark in Science (35.1%).

The vertical transfer rate to four-year institutions varied from 63.8% on the high end to 29.2% (meeting all of the benchmarks) on the low end (missing all the benchmarks). Once again the students meeting the Math and English benchmarks performed better than their counterparts who met Math and English with an additional benchmark in Science (56.9% to 55.0%). Similarly those in the Math only category (49.7%) performed substantially better than those meeting the benchmarks in both Math and Reading (44.5%). Among the students who met only one college readiness benchmark, students meeting the Math benchmark had a considerably higher four-year transfer rate (roughly 50.0%) as compared to their counterparts meeting only English (43.3%) and those meeting only Reading (37.1%)—the rate for those meeting Science was not reported due to cell size restrictions.

As college readiness decreased, the certificate completion rate (as one's highest credential) increased.

Even when viewed in a slightly different manner (associate degree completion among vertical transfer students) the results remain consistent and demonstrate more desirable results for the better prepared students (right side of Figure 1). For those transferring to a four-year college the proportion of community college entrants within each college readiness category that also earned an associate degree decreased along with the number of benchmarks met. For example, slightly more than half of the vertical transfer students who met three or more of the benchmarks also earned an associate degree, while roughly 37% (10.9% of 29.2%) of the transfer students who missed all of the benchmarks earned an associate degree.

As college readiness decreased, the certificate completion rate (as one's highest credential) increased. Although the rate of certificate completion was fairly low across all college readiness categories, the rate for students missing all of the benchmarks was nearly three times greater than that of the students meeting all four of the benchmarks (4.2% to 1.5%).

Figure 1
Community College Outcomes by the Number of College Readiness Benchmarks Met

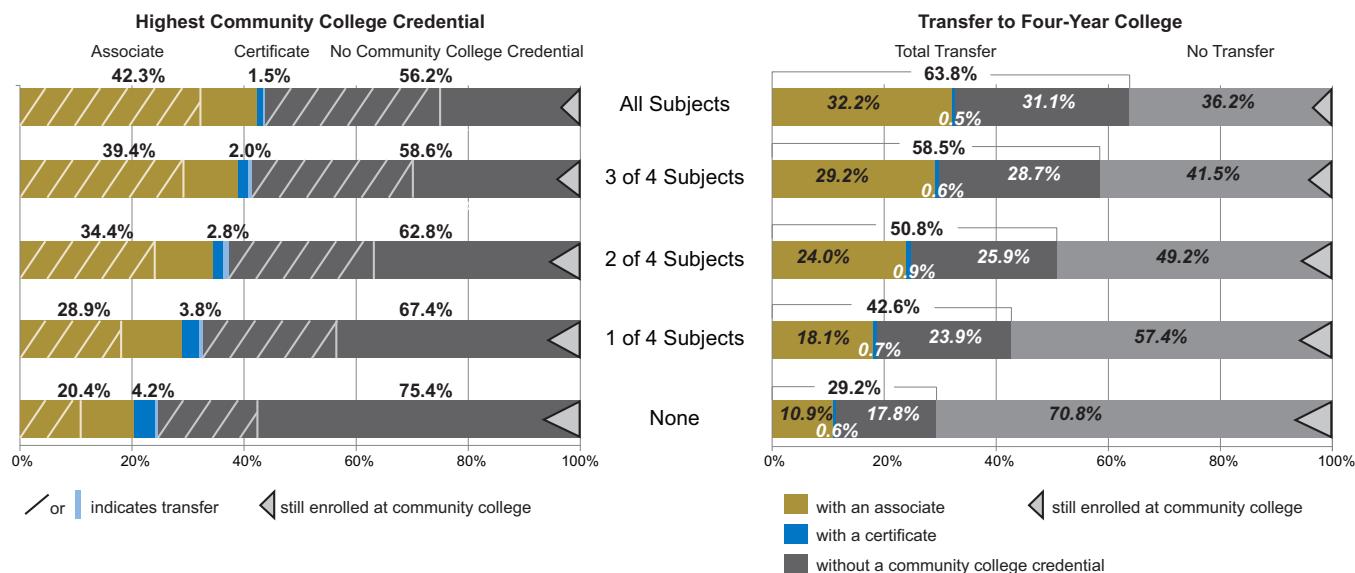


Table 3
Community College Outcome Attainment by College Readiness Benchmark Pattern

ACT College Readiness				Highest Credential			Vertical Transfer Status			Still Enrolled	Outcome Unknown		
				Community College Entrants (n)	Outcome Attained	Associate	Certificate	No Credential	Overall Transfer	Earned Credential and Transferred	Transferred without Credential	No Credential, No Transfer, Still Enrolled	No Credential, No Transfer, Not Enrolled
ACT Benchmarks Met													
All Subjects				2,204	74.9%	42.3%	1.5%	56.2%	63.8%	32.7%	31.1%	3.3%	21.8%
Three Subjects				2,680	70.1%	39.4%	2.0%	58.6%	58.5%	29.8%	28.7%	4.0%	25.9%
Two Subjects				4,978	63.2%	34.4%	2.8%	62.8%	50.8%	24.9%	25.9%	5.3%	31.5%
One Subject				5,759	56.5%	28.9%	3.8%	67.4%	42.6%	18.7%	23.9%	5.6%	37.9%
None				10,892	42.4%	20.4%	4.2%	75.4%	29.2%	11.5%	17.8%	6.4%	51.2%
ACT College Readiness Category													
Math ≥22	English ≥18	Reading ≥21	Science ≥24	26,513									
✓	✓	✓	✓	2,204	74.9%	42.3%	1.5%	56.2%	63.8%	32.7%	31.1%	3.3%	21.8%
✓	✓	✓	✗	1,828	71.7%	42.0%	2.1%	55.9%	59.8%	32.2%	27.6%	3.7%	24.6%
✓	✓	✗	✓	291	65.6%	35.1%	1.4%	63.6%	55.0%	25.8%	29.2%	3.8%	30.6%
✗	✓	✓	✓	523	67.7%	33.3%	1.9%	64.8%	56.0%	23.5%	32.5%	4.4%	27.9%
✓	✓	✗	✗	1,068	68.4%	38.2%	2.4%	59.4%	56.9%	29.1%	27.8%	4.0%	27.5%
✓	✗	✓	✗	173	56.1%	32.4%	1.7%	65.9%	44.5%	22.5%	22.0%	4.6%	39.3%
✓	✗	✗	✓	37	~	~	~	~	~	~	~	~	~
✗	✓	✓	✗	3,546	61.8%	33.3%	2.8%	63.8%	49.3%	23.7%	25.6%	5.7%	32.5%
✗	✓	✗	✓	124	66.7%	33.3%	6.7%	60.0%	53.3%	26.7%	26.7%	6.7%	26.7%
✗	✗	✓	✓	30	~	~	~	~	~	~	~	~	~
✓	✗	✗	✗	497	64.8%	32.2%	4.4%	63.4%	49.7%	21.5%	28.2%	4.2%	31.0%
✗	✓	✗	✗	4,140	57.1%	29.6%	3.7%	66.6%	43.3%	19.5%	23.7%	5.8%	37.1%
✗	✗	✓	✗	1,077	50.6%	24.5%	3.6%	71.9%	37.1%	14.7%	22.5%	5.5%	43.9%
✗	✗	✗	✓	45	~	~	~	~	~	~	~	~	~
✗	✗	✗	✗	10,892	42.4%	20.4%	4.2%	75.4%	29.2%	11.5%	17.8%	6.4%	51.2%

* Enrolled at a community college at the end of the study (spring semester of 2010)

~ Information suppressed due to cell size restrictions

How are gender and college readiness associated with community college outcomes?

Regardless of readiness category, female students had higher rates of associate degree completion and vertical transfer to four-year colleges.

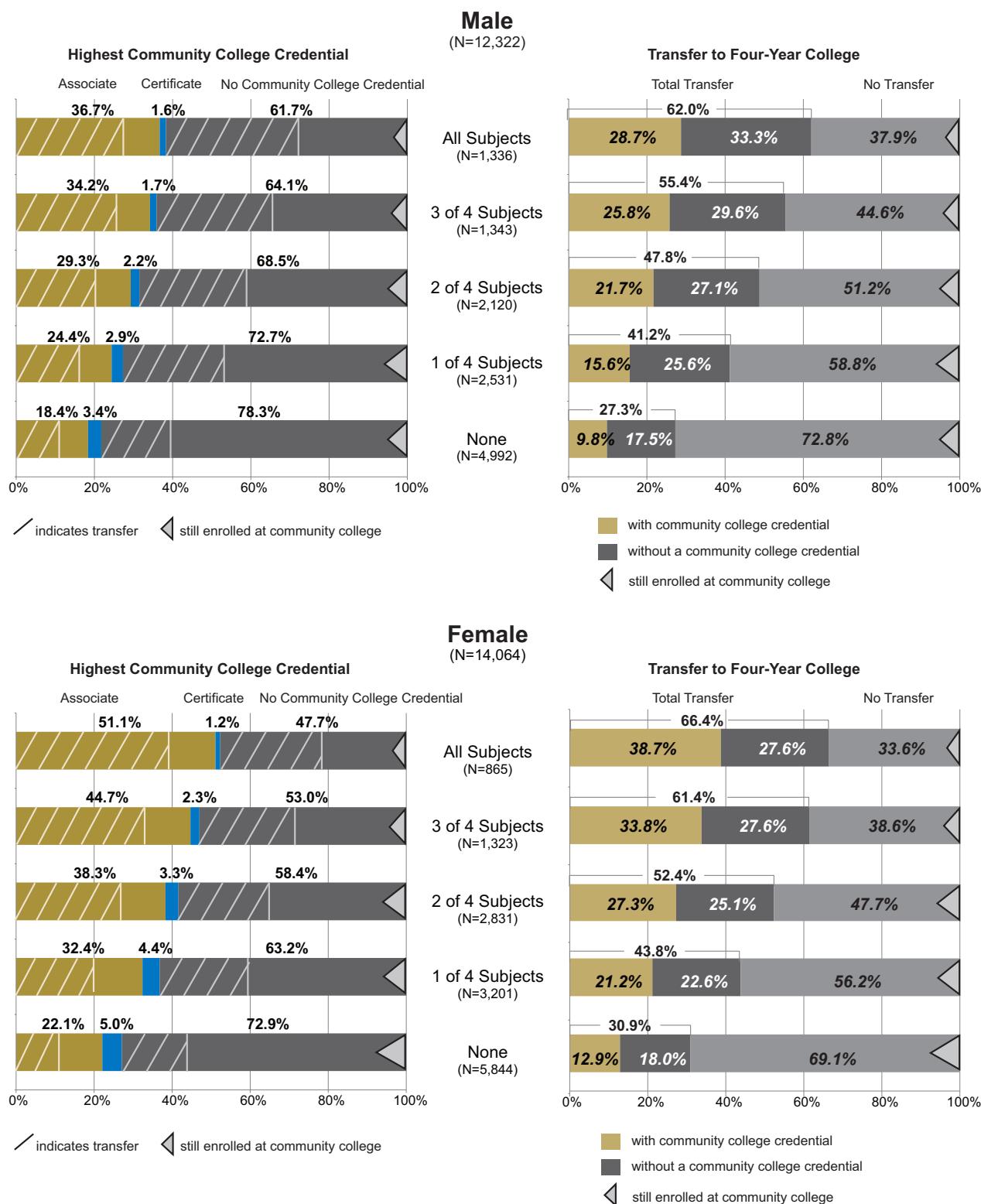
As shown in Figure 2, female community college entrants tended to have higher community college outcome attainment rates when compared with their male peers who met a parallel number of college readiness benchmarks. Female students not only had substantially higher rates of associate degree completion throughout all of the college readiness categories, they also had higher overall rates of vertical transfer to four-year colleges. In fact, female students who met three benchmarks had a similar overall transfer rate (61.4%) as male students who met all of the benchmarks (62.0%). Further, female students meeting only two benchmarks had a higher rate of associate degree completion (38.3%) than male community college entrants meeting all four of the benchmarks (36.7%). Because of the gender differences in associate degree attainment, higher proportions of female students transferred to four-year institutions with community college credentials. Nearly all of the students, male and female alike, who transferred to a four-year college with a community college credential did so with an associate degree; however, due to cell size restrictions we could not separately report associate degree earners and certificate earners among those who transfer.

Male community college entrants had higher rates of vertical transferring without an associate degree.

Similarly, higher proportions of male community college entrants transferred to four-year colleges without earning a community college credential and this occurred throughout all of the college readiness categories, with the exception of the none category (Figure 2). The largest gender difference in terms of transferring without a community college credential was evident among the students meeting all of the college readiness benchmarks (33.3% for males versus 27.6% for females). So even after making gender comparisons within parallel college readiness categories, male community college entrants had considerably lower rates of associate degree completion, considerably lower vertical transfer rates, as well as considerably higher rates and proportions of vertical transferring without an associate degree.

Among the students meeting all of the benchmarks, a slightly higher percentage of male students earned a certificate as their highest community college credential (1.6% to 1.2%); however, in all of the other college readiness categories, female community college entrants maintained a relative advantage over their male counterparts in terms of certificate completion.

Figure 2
Community College Outcomes by Gender and College Readiness



How are college readiness and race/ethnicity associated with community college outcomes?

Due to cell size restrictions, the only reportable race/ethnicity comparison was between White and Asian and traditionally underserved (Latino, African American, and Native American) community college entrants. Students who responded ‘other’ to the race/ethnicity question ($N=1,034$) and those who indicated that they did not want to respond ($N=3,439$) were not included in the comparison. Also, due to a limited number of individuals earning a certificate, the distinction between associate degree attainment and certificate attainment could not be reported; however, nearly all of what is illustrated in the graphics as a community college credential can be attributed to associate degree completion.

As shown in Figure 3, there were considerable differences between White and Asian community college entrants and their traditionally underserved counterparts from parallel college readiness categories. White and Asian students had higher rates of community college credential attainment throughout all of the college readiness categories relative to traditionally underserved students. For example, White and Asian students who met all of the benchmarks had a community college credential completion rate of 45.3%, while similarly prepared underserved minority students had a rate of 28.8%. White and Asian students who met only one of the benchmarks had a higher credential completion rate (34.9%) than all of their better prepared traditionally underserved counterparts. This perhaps suggested that the better prepared underserved community college entrants had more of a singular focus on transferring to a four-year college for the purpose of earning a bachelor’s degree. Regarding overall transfer rates, White and Asian students meeting all four of the benchmarks maintained only a slight advantage over their underserved peers (63.8% to 63.5%). However, for students meeting fewer of the benchmarks, the differences in overall transfer rates favoring the White and Asian students were generally larger. Throughout the other college readiness categories, the differences between the White and Asian and traditionally underserved community college entrants ranged from 4.9 percentage points (among students meeting three benchmarks) to 2.8 percentage points (among students meeting one benchmark).

Among the traditionally underserved community college entrants, the association between college readiness and community college credential attainment was not linear (Figure 3). Traditionally underserved community college entrants meeting three of the benchmarks had the highest community college credential completion rates.

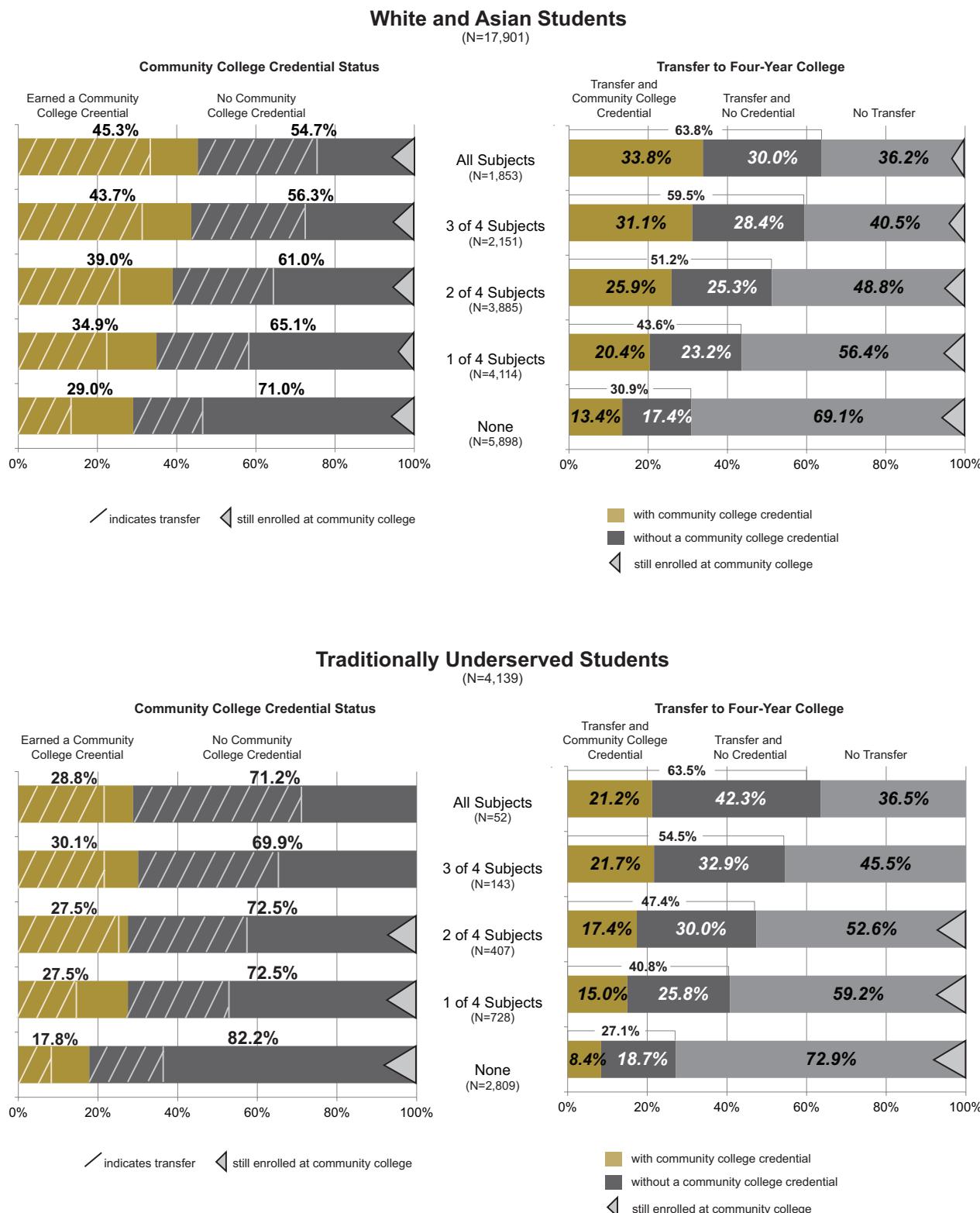
Substantially higher proportions of traditionally underserved minority students transferred to a four-year college without earning a community college degree.

Substantially higher proportions of traditionally underserved community college entrants transferred to a four-year college without earning a community college credential. This occurred throughout all of the college readiness categories, with the largest differences existing between traditionally underserved (42.3%) and White and Asian (30.0%) community college entrants meeting all of the benchmarks.

Regardless of college readiness level, White and Asian students had higher rates of community college degree completion compared to traditionally underserved minority students.

Substantially higher proportions of traditionally underserved minority students transferred to a four-year college without earning a community college degree.

Figure 3
Community College Outcomes by Race/Ethnicity and College Readiness



How are family income and college readiness associated with community college outcomes?

College readiness appeared to eliminate the gap in overall community college outcome attainment between high income community college entrants and their middle income counterparts.

As shown in Table 4, the differences in overall outcome attainment among the best prepared students in the middle income quartiles and those in the high income quartile were quite small—there was a difference of 1.2 percentage points between the three groups; however, similarly ready low income students lagged roughly ten percentage points behind their middle and high income counterparts. Low income students had slightly higher community college credential completion rates than their high income counterparts throughout all of the college readiness categories with the exception of students missing all of the benchmarks. This finding might suggest that maintaining the singular goal of transferring to a four-year college is more common among the better prepared students from the high income category. This is also reflected in the fact that high income students who met all of the college readiness benchmarks had the highest rates of transferring to a four-year institution without a credential.

Throughout all of the college readiness categories, the differences between students in the high and mid-high income categories in terms of overall outcome attainment were quite small (usually within a percentage point). Yet, there were differences between the two groups in how the overall outcome attainment rates were derived. The major differences between the students in the high and mid-high income groups were generally due to higher proportions of mid-high income students earning a credential and higher proportions of high income students transferring without a credential.

For the most part, community college entrants from the mid-high income category had the highest community college credential completion rates—nearly all were associate degrees—except among students meeting all four of the benchmarks. Students meeting all four of the benchmarks from the mid-low income quartile had the highest credential completion rate (49.0%), followed by students meeting three of the benchmarks from the mid-high income quartile (46.1%). Similarly, the same groups of students also had relatively high rates of transferring to a four-year college with a community college credential.

Table 4
Community College Outcomes by Family Income and College Readiness

Income Level	N	Community College Credential Status		Vertical Transfer Status			Still Enrolled	Outcome Unknown
		Earned Credential	No Credential	Overall Transfer	Earned Credential and Transferred	Transfer without Credential		
High Quartile \$80k+	All Four	393	76.1%	37.2%	62.8%	67.2%	28.2%	38.9%
	3 of 4	428	73.1%	37.6%	62.4%	65.0%	29.4%	35.5%
	2 of 4	607	66.4%	31.6%	68.4%	58.6%	23.9%	34.8%
	1 of 4	715	58.3%	28.4%	71.6%	48.7%	18.7%	29.9%
	None	842	47.6%	24.8%	75.2%	37.9%	15.1%	22.8%
Mid-high \$50k-<\$80k	All Four	540	75.9%	43.1%	56.9%	65.4%	32.6%	32.8%
	3 of 4	608	72.7%	46.1%	53.9%	59.2%	32.6%	26.6%
	2 of 4	1,042	64.5%	39.4%	60.6%	51.9%	26.9%	25.0%
	1 of 4	1,113	59.2%	36.2%	63.8%	43.9%	20.9%	23.0%
	None	1,488	46.2%	29.4%	70.6%	29.6%	12.8%	16.9%
Mid-low \$30k-<\$50k	All Four	506	74.9%	49.0%	51.0%	61.5%	35.6%	25.9%
	3 of 4	587	67.5%	42.2%	57.8%	54.5%	29.3%	25.2%
	2 of 4	1,242	60.5%	37.0%	63.0%	46.6%	23.2%	23.4%
	1 of 4	1,300	54.5%	32.1%	67.9%	40.2%	17.8%	22.4%
	None	2,302	42.2%	24.8%	75.2%	28.1%	10.7%	17.4%
Low <\$30k	All Four	233	64.8%	40.3%	59.7%	50.2%	25.8%	24.5%
	3 of 4	317	63.7%	38.2%	61.8%	51.1%	25.6%	25.6%
	2 of 4	700	55.3%	33.3%	66.7%	42.6%	20.6%	22.0%
	1 of 4	954	50.9%	28.8%	71.2%	36.4%	14.3%	22.1%
	None	2,725	38.6%	22.1%	77.9%	26.1%	9.6%	16.5%

* Enrolled at a community college at the end of the study (spring semester of 2010)

How are other environmental factors and college readiness associated with community college outcomes?

Expectation for Financial Aid

Expecting to receive financial aid appeared to have a positive impact on the community college outcomes for students meeting all of the benchmarks.

As shown in Table 5, the differences in overall outcome attainment between those who expected to receive financial aid and those who did not were rather small with one exception. Among the students meeting all of the benchmarks, there were fairly large differences favoring those who expected to receive aid in terms of overall outcome attainment (5.4 percentage points), credential completion (3.5 percentage points), and vertical transfer rates (3.3 percentage points). For students meeting three or fewer benchmarks, the overall outcome attainment rates were fairly similar between those who expected aid and those who did not. Generally, the students who expected to receive aid had marginally higher overall vertical transfer rates. For students meeting two of the college readiness benchmarks, the overall rates of outcome attainment, credential completion, and vertical transfer were nearly identical in contrasting those expecting and not expecting to receive financial aid.

Table 5
Community College Outcomes by the Expectation for Financial Aid and College Readiness

Expected to Receive Financial Aid		N	Overall Outcome Attainment	Community College Credential Status		Vertical Transfer Status		Still Enrolled	Outcome Unknown
				Earned Credential	No Credential	Overall Transfer	Earned Credential and Transferred		
Yes	All Four	1,561	75.3%	43.9%	56.1%	63.2%	31.8%	31.4%	3.3%
	3 of 4	1,826	69.2%	41.6%	58.4%	57.7%	30.1%	27.6%	3.9%
	2 of 4	3,294	62.2%	37.0%	63.0%	49.8%	24.6%	25.3%	5.5%
	1 of 4	3,539	55.9%	31.7%	68.3%	42.2%	17.9%	24.2%	6.0%
	None	6,518	42.7%	24.9%	75.1%	29.3%	11.5%	17.8%	6.7%
No	All Four	292	69.9%	40.4%	59.6%	59.9%	30.5%	29.5%	3.1%
	3 of 4	354	70.6%	43.2%	56.8%	55.9%	28.5%	27.4%	5.6%
	2 of 4	755	62.1%	37.5%	62.5%	48.2%	23.6%	24.6%	5.3%
	1 of 4	1,030	54.2%	32.4%	67.6%	39.6%	17.9%	21.7%	5.6%
	None	1,817	40.6%	24.1%	75.9%	26.8%	10.3%	16.5%	5.7%

* Enrolled at a community college at the end of the study (spring semester of 2010)

Expectation to Work while Enrolled

Community college entrants who expected to work while they were enrolled had slightly lower overall outcome attainment rates when compared to students from parallel college readiness categories who did not expect to work. Students who did not expect to work had higher rates of credential completion, higher vertical transfer rates, and higher rates of vertical transfer with a credential. This was evident throughout all of the college readiness categories (Table 6).

Expecting to work while enrolled appeared to have a negative impact on degree completion and vertical transfer for all readiness groups.

Table 6

Community College Outcomes by the Expectation to Work during College and College Readiness

Expected to Work While Enrolled		N	Community College Credential Status		Vertical Transfer Status			Still Enrolled	Outcome Unknown
Yes	No		Overall Outcome Attainment	Earned Credential	No Credential	Overall Transfer	Earned Credential and Transferred		
Yes	All Four	1,357	73.6%	42.2%	57.8%	62.0%	30.6%	31.5%	3.4%
	3 of 4	1,626	67.3%	39.5%	60.5%	56.2%	28.5%	27.7%	4.7%
	2 of 4	3,067	61.5%	36.4%	63.6%	48.8%	23.7%	25.1%	5.6%
	1 of 4	3,475	54.6%	30.8%	69.2%	41.4%	17.6%	23.9%	6.2%
	None	6,700	41.4%	24.0%	76.0%	28.5%	11.1%	17.3%	6.6%
No	All Four	494	76.1%	46.6%	53.4%	64.2%	34.6%	29.6%	3.2%
	3 of 4	548	75.4%	49.1%	50.9%	60.6%	34.3%	26.3%	2.7%
	2 of 4	989	64.6%	39.3%	60.7%	51.8%	26.5%	25.3%	4.9%
	1 of 4	1,093	58.0%	35.1%	64.9%	42.0%	19.1%	22.9%	5.3%
	None	1,661	45.5%	27.3%	72.7%	29.7%	11.5%	18.2%	5.8%

* Enrolled at a community college at the end of the study (spring semester of 2010)

How are region and college readiness associated with community college outcome attainment?

Community college entrants from Chicago had the lowest rates of both outcome attainment and degree completion relative to their similarly ready peers from all other regions in the state.

Regardless of readiness level, students from the Southeast region had the highest rates of community college outcome attainment.

The better prepared students from the Northeast region had the highest vertical transfer rates without earning a community college degree.

Among the community college entrants who reported their region, those from Chicago had the lowest rates of both outcome attainment and credential completion relative to their similarly ready peers from all other regions in the state. It should be noted that relatively few students from Chicago who met three or more of the benchmarks opted to enroll at community colleges. In an earlier study using the same dataset, Lichtenberger and Dietrich (2012) established that only 3.6% of the students from Chicago who met all of the benchmarks and 6.2% of the students from Chicago who met three of the benchmarks initially enrolled at community colleges.

As shown in Table 7, throughout all of the college readiness categories, students from the Southeast region had the highest rates of community college outcome attainment. For example, 87.7% of the community college entrants from that region who met all of the benchmarks either earned an associate degree, or a certificate, or transferred to a four-year institution during the study period. More specifically, the students from the Southeast region who met three (68.8%) or four (68.8%) of the college readiness benchmarks had the highest vertical transfer rates as well as the highest vertical transfer rates while earning a community college credential. On the other hand, the better prepared students from the Northeast region had the highest vertical transfer rates without earning a credential. In fact, throughout all of the college readiness categories, community college entrants from the Northeast region had the highest rates of transfer without a credential.

Regarding community college credential attainment (nearly all were associate degrees), there also were distinct regional differences. Community college entrants from the Southeast region had the highest rate of credential completion at 58.7%, followed by students from the Southwest and Northwest regions, 54.2% and 53.2%, respectively. Students from the East Central and West Central regions trailed somewhat behind at 48.6% and 45.5%, in that order, while students from Chicago and the Chicago suburbs (Northeast) had the lowest rates.

Table 7
Community College Outcomes by Region and College Readiness

Region	Community College Entrants N	Outcome Attained	Community College Credential Status		Vertical Transfer Status			Still Enrolled	Outcome Unknown
			Earned Credential	No Credential	Overall Transfer	Earned Credential and Transferred	Transfer without Credential		
Chicago	All Four	~	~	~	~	~	~	~	~
	3 of 4	~	~	~	~	~	~	~	~
	2 of 4	184	54.3%	26.6%	73.4%	44.6%	16.8%	27.7%	9.2%
	1 of 4	299	51.8%	24.1%	75.9%	38.5%	10.7%	27.8%	5.4%
	None	1,536	34.8%	17.4%	82.6%	24.7%	7.3%	17.4%	7.7%
Northeast	All Four	1,041	73.6%	36.0%	64.0%	64.9%	27.3%	37.6%	3.1%
	3 of 4	1,237	68.1%	35.1%	64.9%	57.8%	24.7%	33.1%	4.6%
	2 of 4	2,236	63.2%	31.1%	68.9%	53.9%	21.8%	32.2%	4.5%
	1 of 4	2,719	55.2%	26.4%	73.6%	44.5%	15.6%	28.8%	5.7%
	None	4,840	43.5%	21.5%	78.5%	33.0%	11.0%	22.0%	6.4%
Northwest	All Four	372	73.9%	53.2%	46.8%	61.6%	40.9%	20.7%	4.8%
	3 of 4	366	71.3%	50.8%	49.2%	55.7%	35.2%	20.5%	3.6%
	2 of 4	638	60.3%	44.0%	56.0%	46.6%	30.3%	16.3%	7.2%
	1 of 4	679	57.6%	39.6%	60.4%	40.8%	22.8%	18.0%	4.7%
	None	1,048	44.0%	31.8%	68.2%	26.7%	14.5%	12.2%	5.6%
West Central	All Four	211	72.5%	45.5%	54.5%	61.1%	34.1%	27.0%	0.9%
	3 of 4	254	73.6%	44.9%	55.1%	63.0%	34.3%	28.7%	3.5%
	2 of 4	453	63.6%	39.7%	60.3%	48.1%	24.3%	23.8%	5.3%
	1 of 4	496	58.7%	38.1%	61.9%	43.8%	23.2%	20.6%	5.8%
	None	840	44.0%	27.4%	72.6%	28.8%	12.1%	16.7%	6.1%
East Central	All Four	222	73.9%	48.6%	51.4%	62.6%	37.4%	25.2%	3.6%
	3 of 4	315	66.3%	40.6%	59.4%	56.8%	31.1%	25.7%	2.9%
	2 of 4	537	59.0%	38.4%	61.6%	44.4%	23.6%	20.7%	4.5%
	1 of 4	562	51.8%	33.3%	66.7%	36.7%	18.1%	18.5%	6.4%
	None	867	38.6%	25.4%	74.6%	24.3%	11.0%	13.3%	6.6%
Southwest	All Four	192	81.3%	54.2%	45.8%	64.6%	37.5%	27.1%	5.2%
	3 of 4	246	75.2%	52.0%	48.0%	57.7%	34.6%	23.2%	4.9%
	2 of 4	534	68.0%	48.7%	51.3%	49.6%	30.3%	19.3%	5.6%
	1 of 4	602	60.1%	41.4%	58.6%	39.4%	20.6%	18.8%	4.5%
	None	1,042	45.3%	32.7%	67.3%	25.0%	12.5%	12.6%	5.3%
Southeast	All Four	138	87.7%	58.7%	41.3%	68.8%	39.9%	29.0%	0.7%
	3 of 4	208	80.8%	53.8%	46.2%	68.8%	41.8%	26.9%	2.4%
	2 of 4	396	70.2%	46.2%	53.8%	56.3%	32.3%	24.0%	5.6%
	1 of 4	402	65.4%	48.5%	51.5%	48.3%	31.3%	16.9%	7.0%
	None	719	47.3%	34.4%	65.6%	30.0%	17.1%	12.9%	6.8%

* Enrolled at a community college at the end of the study (spring semester of 2010)

~ Information suppressed due to cell size restrictions

Throughout all of the college readiness levels, community college entrants who earned an associate degree had the highest rates of transfer to four-year colleges.

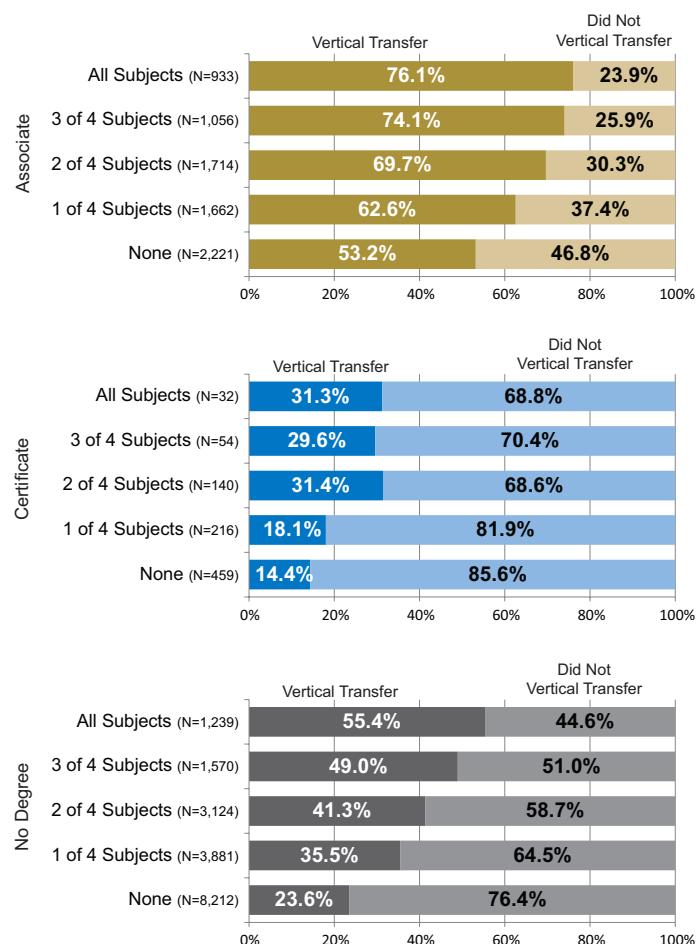
How are community college credential attainment and college readiness associated with transferring to a four-year college?

The association between community college credential attainment and transferring to a four-year college is illustrated in Figure 5. It is fairly evident from this graph that the community college entrants who earned an associate degree had the highest rates of transfer to four-year colleges throughout all of the college readiness categories, ranging from 76.1% for those meeting all four benchmarks to 53.2% for those missing all of the benchmarks.

The community college entrants who transitioned to college with lower levels of college readiness and persisted until they earned an associate degree fared relatively well in terms of vertical transfer rates. For example, community college entrants who missed all of the benchmarks and earned an associate degree had only a slightly lower rate of vertical transfer (53.2%) than students who did not earn an associate who met all of the benchmarks (55.4%).

Throughout the college readiness categories, community college entrants who earned a certificate as their highest credential had the lowest rates of vertical transfer. Perhaps this is due to certificate earners having more of an immediate focus on workforce entry than transferring to a four-year institution.

Figure 5
Highest Community College Degree, College Readiness, and Vertical Transfer Rates



Discussion

What did exploring the community college outcomes by the various college readiness benchmark patterns tell us?

Although a disproportionately high number of community college entrants were less than ready for college, as measured by ACT college readiness benchmarks, a sizable portion (about one in five) of community college entrants met three or more benchmarks. These better prepared community college entrants tended to fare quite well in terms of outcome attainment. Nearly three-quarters of community college entrants who met all of the benchmarks and over 70% of community college entrants meeting three benchmarks either earned a community college credential (nearly all were associate degrees), or vertically transferred to a four-year college, or did both.

One in five community college entrants met three or more of the ACT benchmarks. Most of these students (70% or more) earned a degree, or transferred, or did both.

There were varying degrees of community college success among the less prepared community college entrants based on the specific college readiness benchmarks that were met. Among the community college entrants meeting only one of the benchmarks, there were relatively high rates of overall outcome attainment, specifically for those meeting either the Math or English benchmark. Further, among the students who met two of the benchmarks, those meeting the benchmarks in both Math and English had the highest overall rate of outcome attainment, and in a few cases, the rate was higher than it was for students meeting three of the benchmarks. These findings are consistent with recent research focusing on how the individual ACT subject matter tests and benchmarks are associated postsecondary outcomes for four-year college entrants. Lichtenberger (2011), Lichtenberger and Dietrich (2012), and Bettinger, Evans, and Pope (2011) all found that performance on ACT Math and English accounted for more of the variance in the postsecondary outcomes than performance on Reading and Science.

Among students meeting fewer than three benchmarks, students meeting the Math or English benchmarks (or both) had greater success in community college.

Among the community college entrants who missed all of the readiness benchmarks, more than two out of every five attained a community college outcome. It should be noted that disproportionately fewer of the students who missed all of the benchmarks and made the transition to a four-year college earned a community college degree prior to transferring, as compared with community college entrants meeting more of the benchmarks. This could be problematic as less ready students would also be at risk of dropping out of their respective four-year colleges without earning a bachelor's degree, leaving them without any college degree.

Students meeting fewer of the benchmarks had comparatively higher rates of earning a certificate as their highest community college credential. Unfortunately, since relatively few of the community college entrants earned a certificate as their highest credential, more detailed analyses were not possible.

Less prepared students who transfer without earning an associate degree are at risk of dropping out of their four-year institution, thus having no college credential for all their time and effort.

What happens when pre-college and environmental factors as well as geography are considered?

The Gender Gap

More female community college entrants earned a credential or transferred to a four-year institution regardless of readiness level.

There was a definitive gender gap in outcome attainment favoring female community college entrants. Previous research using the same dataset has established that female students transitioned to postsecondary education at significantly higher rates than their male counterparts, even after accounting for differences in college readiness (Lichtenberger & Dietrich, 2012). The current study demonstrates how the gender gap favoring female students widens further when moving from enrollment to the postsecondary outcomes of community college entrants. A considerably higher number of female community college entrants either earned a credential or transferred to a four-year college throughout all of the college readiness levels. Relatedly, among the male community college entrants who made the transition to a four-year college, considerably fewer earned an associate degree prior to transferring—this was evident both in terms of the actual rate of transfer without an associate degree and the proportion of male vertical transfers lacking an associate degree. When placed in the context of gender differences in bachelor's degree completion rates, males are considerably less likely to complete a bachelor's degree program either as four-year college entrants (Lichtenberger & Dietrich, 2012; Smalley, Lichtenberger, & Brown, 2010) or as vertical transfer students (Smalley, Lichtenberger, & Brown, 2010). Given that there are fewer male community college entrants earning an associate degree prior to transfer, considerably more males would be at risk of leaving college without any postsecondary credential.

Differences in Terms of Ethnicity/Race

For all college readiness levels, White and Asian community college entrants had substantially higher rates of associate degree completion.

Across all of the college readiness categories, White and Asian community college entrants had substantially higher rates of associate degree completion than their traditionally underserved minority counterparts (Latino, African American, and Native American community college entrants). Differences in terms of vertical transfer rates were somewhat more muted when comparing the well-prepared White and Asian community college entrants to their similarly prepared underserved counterparts. Among the less-prepared community college entrants, traditionally underserved community college entrants had lower vertical transfer rates than similarly-ready White and Asian students—this was coupled with considerably lower proportions of traditionally underserved community college entrants earning an associate degree prior to transfer. The relatively low rates of associate degree completion prior to transfer could be problematic, as previous research has shown that traditionally underserved vertical transfer students have comparatively lower rates of bachelor's degree completion (Smalley et al., 2010). This, combined with the results of the current study suggests that underserved vertical transfer students would be at a greater relative risk of dropping out of college without earning any postsecondary degree, since fewer earn associate degrees prior to transferring and fewer complete a bachelor's degree after making the transition to a four-year college.

Family income and college ready students

Consideration of college readiness appeared to eliminate some of the achievement gap in community college outcome attainment that has traditionally favored students from wealthier families (Smalley et al., 2010). The differences in overall community college outcome attainment between well-prepared students from middle-income and high-income families were extremely small. Still, the rates of attainment for specific outcomes differed by income group. The community college entrants from high income families had substantially higher vertical transfer rates, while students from middle income families had substantially higher rates of associate degree completion in addition to higher rates of vertical transfer after earning an associate degree.

Anticipating the need to work while enrolled appeared to function as a hinderance to earning a credential and vertically transferring to a four-year college for some of the community college entrants. Community college entrants who expected to work while enrolled had consistently lower outcome attainment rates when compared with students from parallel college readiness categories who did not expect to work. The differences between those who expected to receive financial aid and those who did not were not as clear cut. This perhaps suggests that for community college entrants, expecting to work during college was slightly more detrimental in terms of outcome attainment than not expecting to receive financial aid.

Regional differences

Community college entrants from the Northeast region of the state—the Chicago suburbs—appeared to have more of a singular focus on transitioning to a four-year college, as throughout all of the college readiness categories they tended to have the lowest credential completion rates and the highest vertical transfer rates without community college credentials. Students from more rural locales, such as the Southeast, Southwest, and Northwest regions, had significantly higher rates of community college credential completion even after accounting for college readiness. In fact, community college entrants from the Southeast (34.4%) and Southwest (32.7%) regions who missed all of the benchmarks had only marginally lower rates of credential completion than the best-prepared students from the Northeast region (36.0%).

In terms of eliminating geographic disparities in educational attainment, the results suggest that community colleges seem to be providing opportunities to students with varying levels of college readiness from more rural locales—such as the Southeast region—not only for associate and certificate attainment but also as a means to transition to a four-year college.

High income students were more likely to transfer without an associate degree, while middle income students were more likely to earn an associate degree or transfer after completing the associate degree.

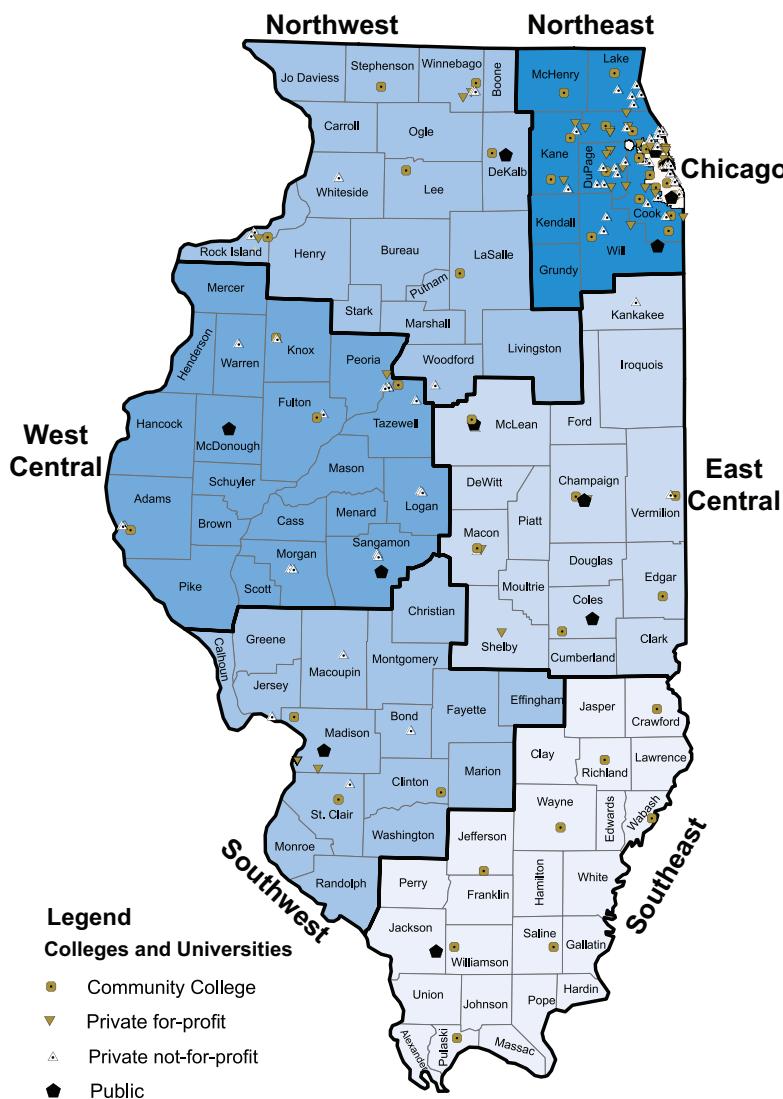
Regardless of college readiness level, students who expected to work while enrolled had lower rates of outcome attainment.

Students from more rural locales, such as the Southeast, Southwest, and Northwest regions, had significantly higher rates of community college credential completion even after accounting for college readiness.

What happens when proximity to four-year colleges is considered?

The lack of proximity to four-year colleges for community college entrants did not necessarily equate to decreased vertical transfer rates. In fact, students from the Southeast region have the least proximity to four-year colleges (see Figure 4) but still maintained the highest transfer rates throughout most of the benchmark categories. Yet, close proximity to several four-year institutions, both public and private—as is the case with students from the Northeast region and Chicago—seemed to be associated with comparatively lower rates of community college credential completion and higher rates of vertical transfer without a credential. This warrants further investigation.

Figure 4
Illinois Regions and Postsecondary Institution by Sector



Policy Implications: The Community College as Part of the Completion Agenda

Importance of Associate Degrees

More must be done to provide information for select groups of community college entrants regarding the benefits of earning an associate degree regardless of their intention to transfer to a four-year college and earn a bachelor's degree. This information is particularly important for community college entrants making the transition to four-year colleges who are at risk of not completing their bachelor's degree. Unfortunately, many of the groups of students with relatively high rates of vertical transfer without an associate degree have traditionally maintained relatively low rates of bachelor's degree completion—namely males, traditionally underserved minority students, and those who are less prepared for college. The associate degree could serve not only as insurance in the event a bachelor's degree is not earned but as the building block towards bachelor's degree completion.

Reverse Articulation Initiative

Vertical transfer students at risk of not completing a bachelor's degree would benefit from a current policy initiative that attempts to increase the proportion of degree holders by facilitating the exchange of information between two-year degree granting and baccalaureate-granting institutions. This initiative is sometimes called "reverse articulation," "providing credit when it's due," or "reverse transfer." As policies are developed related to reverse articulation, policymakers should take into consideration the groups of vertical transfer students at risk of leaving college without any degree. Reverse articulation typically involves the development of policies allowing vertical transfer students to apply credits earned at a four-year institution to the completion of an associate degree begun at a community college. The motivation behind such

policies is that if vertical transfer students are leaving their respective community colleges without an associate degree, it would be beneficial to establish methods for determining if the credits earned at their receiving four-year college would fulfill the remaining associate degree requirements at their sending community college. Therefore, reverse articulation policies have the potential to increase the number of associate degrees earned.

Generally, in order for a vertical transfer student to be eligible for reverse articulation of credit they must leave the community college in good academic standing with their total credit hours over a certain threshold which varies by state. For example, some states require 45 community college credit hours prior to the vertical transfer for eligibility (Garber, Kleemann, Marshall, Parke, & Wunderle, 2010; Mangan, 2011). In moving towards bachelor's degree completion at their four-year college, these transfer students sometimes successfully complete the coursework that was required for an associate degree at their sending community college. With a reverse articulation policy in place, the four-year institution provides the information to the sending community college, and a degree audit takes place. Transcripts are requested to verify the degree audit, then, if the credits from the four-year institution fulfill the remaining associate degree requirements at the sending community college, the student is formally awarded the associate degree by that community college.

The benefits of the reverse articulation initiative to the typical vertical transfer student are fairly straightforward, especially if the student has characteristics associated with an increased risk of dropping out of a bachelor's degree program. Simply put, more students would be earning college degrees. Community colleges would also benefit as they would now be able to report increased degree completion rates for their community college entrants.

Future Research

This study represents a vision of the types of analyses that could be conducted in the future with the development of the state of Illinois' longitudinal data system. IERC welcomes feedback from other researchers and policymakers on these findings in the interest of supporting P-20 education policy in the state of Illinois.

Areas of future research include: 1) determining how the different types of associate degrees—associate of arts, associate of science, associate of arts and science, associate of applied science—potentially factor into vertical transfer and bachelor's degree completion upon transfer; 2) examining the effect of college majors on the postsecondary outcomes of community college entrants; and 3) conducting a follow-up study of vertical transfer students to gain a better understanding of when and where they transfer.

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